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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

July 18, 2017

Thomas Wohlford, Interim Closure Manager
Homestake Mining Company of California
P.O. Box 98
Grants, NM 87020

RE: Homestake Mining Company of California (HMC), DP-200, Response to *HMC Plan of Operation San Andres Glorieta Water Supply*

Dear Mr. Wohlford:

On June 9, 2017, New Mexico Environment Department (NMED) received the above referenced letter from Homestake Mining Company (HMC) in response to a letter issued by NMED on March 10, 2017. A meeting was held on May 4, 2017 to further discuss the topics contained within the March 10, 2017 letter and to understand the intentions of HMC related to the San Andres-Glorieta (SAG) water supply wells. Although the May 4, 2017 meeting was held to discuss the SAG wells and address the comments within the March 10, 2017 letter, the June 9, 2017 letter fails to adequately address the topics identified at the May 4, 2017 meeting or in the March 10, 2017 letter. Below are the original comments, *in italics*, which still need to be addressed from the March 10, 2017 letter and the present requests from NMED.

1. *Condition 21 of DP-200 requires a workplan and an implementation schedule to evaluate the integrity of all wells completed within the San Andres Glorieta aquifer (SAG). The objective of this study was to determine if cross-contamination from overlying aquifers into the SAG is occurring through any existing wells within the SAG. The four summary reports submitted to NMED did not address the potential for cross-contamination from all overlying aquifers. The reports only address cross-contamination from the alluvial aquifer. Within 60 days of the date of this letter, HMC shall re-submit revised reports stating the overlying aquifers at each well location; if saturated conditions exist within each overlying aquifer; the potential for cross-contamination from overlying aquifers into*

underlying aquifers; and detailed well completion schematics (similar to Deep Well #2) for the following wells – 943, 951, 928, Old Well #1 and Deep Well #1.

Please submit the requested information within 30 days from the date of this letter.

2. *Well 951*

On March 14, 2016, NMED approved continued used of this well as a monitoring well. However, geophysical logging show the well casing ends at 220' below ground surface (bgs) with the SAG starting at 242'. This shows a potential for cross-contamination from overlying aquifers into the SAG. Within 60 days of the date of this letter, HMC shall submit and explain the potential for cross-contamination from overlying aquifers into SAG or vice versa.

Potential cross contamination was not addressed in the June 9, 2017 letter. The permit issued by the NM Office of the State Engineer (OSE) for Well 951R states that Well 951 shall be plugged and abandoned within one year from the installation of Well 951R. Within 30 days from the date of this letter, please submit an OSE Well Plugging Plan of Operations for the abandonment of Well 951 to NMED and OSE for approval.

3. *Well 928*

On March 14, 2016, NMED approved the abandonment of Well 928 and requested that an abandonment plan be submitted to NMED and the New Mexico Office of the State Engineer (OSE) for approval. HMC submitted an abandonment plan on April 28, 2016 and was approved by NMED via email on May 5, 2016. Upon further review of the 2015 San Andres Well Integrity Testing, received by NMED on December 9, 2015, an obstruction was encountered at 324' bgs preventing further evaluation of the well to it final installed depth of 865' bgs. The HMC well plugging plan submitted to OSE stated a total 'depth of the well' of 324' bgs. In accordance with OSE regulations 19.27.4.31.K. NMAC, an artesian well shall be plugged from the bottom upwards with a neat cement slurry. Within 60 days of the date of this letter, HMC shall submit a revised OSE Well Plugging Plan of Operations for the abandonment of Well 928 to NMED and OSE (concurrently) for approval stating that the entire 'depth of the well' will be 865' bgs and a revised Table A stating the plugging intervals for the cement grout to a depth of 865' bgs.

In accordance with OSE statute an artesian well shall be plugged from the bottom upwards with a neat cement slurry even if an obstruction is encountered. Within 30 days from the date of this letter, HMC shall submit a revised OSE Well Plugging Plan of Operations for the abandonment of Well 928 in its entirety to NMED and OSE for approval.

4. *Old #1 Well*
   a. *On March 14, 2016, NMED approved the abandonment of Old #1 well and an extension of time to complete the abandonment plan. HMC requested an additional extension of time to complete the abandonment plan on July 13, 2016 which was approved by NMED via email on July 19, 2016 with a revised deadline of August 31, 2016. The Well Abandonment Plan and Evaluation for Old #1 well was received by NMED on August 28, 2016 stating that an obstruction was encountered at 425' bgs preventing further evaluation of the well to it final installed depth of 989' bgs. The HMC well plugging plan submitted to OSE stated a total 'depth of the well' of 425' bgs. In accordance with OSE regulations 19.27.4.31.K. NMAC, an artesian well shall be plugged from the bottom upwards with a neat cement slurry. Within 60 days of the date of this letter, HMC shall submit a revised OSE Well Plugging Plan of Operations for the abandonment of Old #1 well to NMED and OSE (concurrently) for approval stating that the entire 'depth of the well' will be 989' bgs and a revised Table A stating the plugging intervals for the cement grout to a depth of 989' bgs.*

      In accordance with OSE statute an artesian well shall be plugged from the bottom upwards with a neat cement slurry even if an obstruction is encountered. Within 30 days from the date of this letter, HMC shall submit a revised OSE Well Plugging Plan of Operations for the abandonment of Old #1 Well in its entirety to NMED and OSE for approval.

5. *951R*

   Well completion information states the well casing was installed to a depth of 410' bgs with an open-hole completion from 410' to 525' bgs. The top of the SAG is at a depth of 420' bgs. This shows a potential for cross-contamination from overlying aquifers into the SAG. Within 60 days of the date of this letter, HMC shall submit and explain the potential for cross-contamination from overlying aquifers into SAG or vice versa.

   Please submit the requested information within 30 days from the date of this letter.

6. *943*
   a. *Well completion information states the well casing was installed to a depth of 702' bgs with an open-hole completion from 702' to 978' bgs. The top of the SAG is at a depth of 724' bgs. This shows a potential for cross-contamination from overlying aquifers into the SAG. Within 60 days of the date of this letter, HMC shall submit and explain the potential for cross-contamination from overlying aquifers into SAG or vice versa.*
   b. *Summary of Well 943 Integrity Testing states that the casing has <u>considerable</u> corrosion but does not show <u>significant</u> leakage of alluvial water into the well. Within 60 days of the date of this letter, HMC shall submit and explain the potential for cross-contamination from overlying aquifers into SAG or vice versa at this well location due to the observed corrosion of the well casing.*

c. *Summary of Well 943 Integrity Testing states that the alluvium is likely dry at this location based on the depth to its bottom. Within 60 days of the date of this letter, HMC shall submit and confirm or deny this assertion by submitting alluvial water level data adjacent to Well 943.*

All requested information has been addressed in the June 2, 2017 letter to NMED [Re: Potential Sources to San Andres Glorieta Aquifer Well 943 (B-28-S-329), Condition 4].

7. *Deep Well #2 –*

The submitted well geophysical log for Deep Well #2 shows a section of the fiberglass sleeve as being split and cracked with rocks and gravel protruding from the fiberglass sleeve between 201' to 216' bgs. No information was submitted on the annular seal for the original casing or the sealing of the annular space between the fiberglass sleeve and the second sleeve. Sealing information was submitted for the annular space between the original casing and the second sleeve which was grouted between 218' to 400' bgs. The annular seal between the original casing and the second casing is below the compromised area of the fiberglass sleeve. Therefore, the compromised fiberglass sleeve at 201' to 218' bgs could allow alluvial and/or upper Chinle waters to enter the well as this area which has no annular seal. In accordance with OSE regulations 19.27.4.30.A. (4) NMAC, wells which encounter non-potable, contaminated, or polluted water at any depth shall have the well annulus sealed and the well properly screened to prevent the commingling of the undesirable water with any potable or uncontaminated water. Within 60 days of the date of this letter, HMC shall submit an OSE well abandonment plan to NMED and OSE (concurrently) for approval. The well abandonment plan must comply with regulations of OSE and shall be abandoned within 180 days from the approval of the abandonment plan by OSE.

In accordance with OSE statute, any well encountering contaminated water *at* any depth shall have the well annulus sealed and the well properly screened to prevent the commingling of the undesirable water with any potable or uncontaminated water. Within 30 days from the date of this letter, HMC shall submit a revised OSE Well Plugging Plan of Operations for the abandonment of Deep Well #2 in its entirety to NMED and OSE for approval.

8. *Deep Well #1 –*

The submitted well geophysical log for Deep Well #1 shows a break in the casing was observed between 234' to 245' bgs. The well casing was perforated from 919' to 999' bgs with an open-hole completion to 1022' bgs. The top of the SAG aquifer starting at a depth of 955' bgs. This shows a potential for cross-contamination from overlying aquifers into the SAG. Within 60 days of the date of this letter, HMC shall submit and explain the potential for cross-contamination from the overlying aquifers into the SAG or vice versa.

The June 9, 2017 letter from HMC states a blockage was located approximately 240 feet below ground surface in Deep Well #1. Well integrity testing for Deep Well #1 submitted by HMC and received by NMED on June 29, 2016 stated a break in the casing was observed between 234' to 245' below ground surface. Within 30 days from the date of this letter, HMC shall clarify if the well is blocked or has a break in the casing and submit this information along with a revised OSE Well Plugging Plan of Operations for the abandonment of Deep Well #1 in its entirety to NMED and OSE for approval.

If you have any questions, please contact Bill Pearson at (505) 827-0602 or by e-mail at william.pearson@state.nm.us

Sincerely,

Kurt Vollbrecht, Program Manager
Mining Environmental Compliance Section
Ground Water Quality Bureau

Enclosures:

1) NM OSE, RE: *Homestake Mining Company (HMC) Well Integrity, File No.: 1605 and B-285*, dated March 9, 2017
2) NM OSE, RE: *Application For Repair and Deepen* (B-28-A; Deep Well #1), dated April 3, 2017
3) NM OSE, RE: *Plugging Plan of Operation B-28 POD407* (Well 928), dated July 17, 2017
4) NM OSE, RE: *Plugging Plan of Operation B-28 (Old #1),* date May 18, 2017

E-Mailed Copies:

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